

for ICU elements include a demonstration that the direct and indirect costs include only those facilities and functions necessarily deployed by the incumbent LECs in order to provide the ICU elements. This demonstration will also pertain to the first two guidelines concerning the costs' consistent relationship to scorched network assumptions and spare capacity assumptions. The TSLRIC studies should include only the types of facilities that will be unbundled from the incumbent LECs' basic ubiquitous local networks.

Incremental cost studies should identify all costs that will be avoided when ICU elements are provided. Most existing LEC studies must be recast in order to separate retail costs from the underlying costs of wholesale services. The definition of joint (or shared) costs varies among different incumbent LECs and includes potentially large allocations of retail costs. Cost studies developed under the Commission's guidelines must be able to clearly identify the costs that should be treated as joint (or shared) costs and ensure that the study does not over-allocate costs to a non-direct cost category.

Current TSLRIC study methods may add highly averaged shared costs to the direct LRIC costs of services identified by engineering process models. Costs that may in fact be caused by specific subsets of services are instead averaged across other services that do not in fact cause those costs in reality. As I note below, some true joint costs may well be included in a correct TSLRIC cost analysis. The problem, however, is that joint costs are defined on such a broad or averaged basis, as a markup to direct economic costs, that differences in cost causation are obscured rather than being revealed. Significant costs that are sometimes treated as joint and averaged over many services are incurred only when services are offered on a retail basis to end users. Offering the services wholesale avoids those costs. The increment of marketing costs that

would be avoided if more discretionary services were not offered should be greater than the marketing costs for services that are price-inelastic. Averaging marketing, product management and customer support costs into a shared cost markup to the direct incremental costs masks this fact.

Similarly, some services may be derived from lower cost technology sets than other services that require higher technology or more specialized inputs. The incremental investments and capital recovery charges for the higher technology services should likewise be greater than the average for the firm as a whole. The costs for services that require higher technology or more specialized inputs, such as broadband video services, can be understated, perhaps substantially, if part of the added costs of network upgrades needed to provide these services are treated as joint costs allocated to basic telephony services as well.

"Joint" costs should be segmented from "common" costs and be attributed to ICU elements only if the joint cost condition arises from the technology used. Existing LEC incremental studies utilize a variety of different terms to describe costs that may not be captured by the direct cost models, including joint costs, shared costs and "residual" costs. In practice these terms are not consistently or even clearly defined and create the potential for large markups over the direct economic costs of a service. Such terms should not be used by the Commission. Conceptually it is appropriate to refer only to direct, joint and common costs.²² The simple definition of TSLRIC that I noted, i.e., "The cost to provide a total quantity of a service given that the company provides all

²² See Notice, paragraph 126. Because some sort of pro rata recovery of incumbent LECs' true "common" costs has simply been assumed in most decisions to date — without appropriate consideration of efficiency effects — my paper discusses common cost recovery in the following section.

of its other services," requires that only the direct economic costs of an ICU element plus only well-defined joint costs should be recovered from incumbent LECs' ICU prices.

True joint costs generally arise from the technological properties of the resources being used. Many costs typically treated as joint or shared costs in TSLRIC type cost studies are, in fact, shared retail service costs that would not be incurred if the underlying resources were being consumed by a competing market entrant with its own retail service costs. Examples of true technology-driven joint costs are considerably more limited. Software right-to-use (RTU) fees associated with switch operating systems, peripheral devices, signaling equipment and intelligent traffic concentration devices are clear examples, because some interconnection or unbundled elements will make use of the same software systems used to provide end user retail services.

Even with respect to true joint costs like RTU fees, any increment added to a TSLRIC cost must be calculated precisely with reference to demand units and the planning period over which such shared costs are recoverable. It is not proper to treat many joint costs as if they are incurred linearly with demand, because such costs are not volume sensitive. If competition increases the units of demand over which RTU fees are spread (for example, by stimulating the use of remote call forwarding as a number portability substitute) that change must be reflected in the cost development.

The inputs and outputs from the TSLRIC study should be accessible and replicable. Finally, it is critical that the Commission qualitative guidelines concerning cost studies for ICU pricing specify a minimum level of outside party access to the components of the studies. These components must include the

elements discussed above, such as segmenting various "joint" costs and the four-way identification of types of spare capacity. The capacity utilization assumptions of any engineering cost model must be carefully specified and set out in a manner that allows them to be varied for sensitivity tests, i.e., not "hardwired" into the models assumptions or database. In addition, accessibility also means that most proprietary features of the cost models used for ICU pricing should be available to regulator staffs and outside parties, albeit under rigorous and effective non-disclosure agreements.

Unfortunately, the accessibility to many incumbent LEC incremental cost studies has been drastically reduced in recent years. In the 1980s, Bellcore developed a number of cost models for use by its Bell company and other LEC clients. Initially Bellcore sought to limit outside party access to parts of certain models, such as the Switching Cost Information System (SCIS), which were themselves derived from the proprietary, competitively sensitive data of third parties such as switch manufacturers. These limits did not unduly bar analysis of the applications of the proprietary Bellcore analyses in specific cases; it could be assumed that Bellcore had not manipulated the third parties' data. That data could be presumed accurate and the data inputs specified by Bellcore itself or by the specific LEC using the Bellcore cost model could be analyzed directly. More recently, Bellcore has substantially broadened its assertions of competitive sensitivity of all aspects of its proprietary models²³ and has required that data based upon use of the models be almost entirely redacted. Now,

²³ In my recent experience, Bellcore has sought independent status as an intervenor in several state interconnection cases in order to assert its claim for full protection of all aspects of the cost studies that utilize its models. Examples of such intervention are Connecticut [DPUC Docket 95-06-17] and Pennsylvania [PUC Docket No. I-00940035]. In both cases, basic elements of LEC cost studies that used Bellcore models were not available to any other parties.

even a LEC's own inputs, specific to that company and usually to the very jurisdiction in which the costs and prices are at issue, are fully redacted by Bellcore.²⁴

Several states have now set forth tests for minimum accessibility, under non-disclosure agreements, to proprietary LEC cost models. This Commission should do the same. For example, the Pennsylvania Commission ordered that "all cost studies must be supported by testimony which explains exactly how the results were calculated so that, as adopted by the Colorado PUC, 'others may replicate the methodology and calculate equivalent or alternative assumptions.'"²⁵ The Pennsylvania agency cited Colorado's cost of service Rule number 3, requiring that all algorithms must be provided. Bellcore's concerns about the future market value of its models as a tool for internal client cost analysis, however legitimate, may preclude use of these models for analyzing costs associated with competitive ICU prices.

²⁴ In fact, this practice appears to have begun at the FCC in the "Open Network Architecture" tariff investigation in Docket CC 91-92. The regional Bell companies used different, apparently customized versions of these programs to prepare their tariffs but insufficient information was made available to allow a full review of the tariffs.

²⁵ Pennsylvania Public Utility Commission, Formal Investigation to Examine and Establish Updated Universal Service Principles and Policies for Telecommunications Services in the Commonwealth, Docket No. I-00940035, Order, August 31, 1995, p. 22. Emphasis added.

Limitations on a "reasonable profit"

The Commission must define what constitutes the reasonable profit, that may be added to the direct economic costs of unbundled network elements. Developing the empirical guidelines I discussed above for TSLRIC studies inherently will resolve this issue. Proper TSLRIC studies include the economically correct reasonable profit for use of the resource covered by the cost study. Some LECs have tried to claim that the capital costs included in the TSLRIC studies do not represent a level of "profits." LEC's claim that the "cost of money" is somehow separate from a firm's market cost of capital and expected levels of "profit." This assertion is plainly incorrect. The distinction between cost of money and profits is entirely spurious and is not found among normal financial valuation tools.²⁶ The cost of money represents the market opportunity cost of capital that a competitive firm should expect to recover with respect to the direct resource costs identified in a TSLRIC study. This is the economic profit. If the Commission allowed LECs to recover an additional margin in ICU prices the markup itself would clearly not equate to a level of "reasonable profit."

One of the fundamental tests of whether pricing rules are effective is whether they preclude monopoly rents — excess profits exceeding the market cost of capital. It would be wildly inconsistent with the federal Act's stated preference for facilities based competition if the profit component were

²⁶ Firms in competitive markets may establish an internal "hurdle rate" in excess of 20% to assess the viability of capital projects. This is a pre-tax rate that is basically equivalent to the average price cap LEC's after tax 1995 net earnings of 14.09%. Competitive firms may apply higher internal rates of return to exceptionally risky projects, such as resource extraction investments that may not be recoverable. The incumbent LECs' resources used to provide ICU elements are largely recoverable and reusable, however.

computed as any level of "contribution" deemed appropriate. Even if the TSLRIC itself is computed accurately, there is no guarantee that the markup factor ensures overall economic efficiency. The size of the markup factor could mean that a LEC is operating with an inefficient level of "shared" or joint costs. While the Act allows an incumbent LEC to collect a reasonable profit in prices for unbundled network elements, it does not empower the LEC to establish an additional profit margin as high as it may wish.

Recovery of common costs

As I noted above,²⁷ the clear practice among state regulators who have adopted a TSLRIC cost standard for ICU prices is to include a markup to the TSLRIC value in order to allow the incumbent LEC to recover some of its "joint and common" costs. This practice seems intuitively correct. After all, the incumbent LECs do have common costs, as do all firms, and they must be collected from somewhere. Intuition is in this instance quite misleading, however. Efficient economic pricing will be fostered by requiring each interconnecting carrier, incumbent or entrant, to recover its common costs only from its own customers, and not through rates for the ICU functions.

If a firm is operating efficiently, its common costs should be similar to an equally efficient rival of approximately the same size. Indeed, because common costs should have a large a fixed component, a larger firm may realize scale efficiencies and thus enjoy a lower percentage of common costs than a smaller rival. In telecommunications, this property should favor the incumbent LECs, even if they were not allowed to recover common costs from

²⁷ Footnote 18 above.

prices for ICU functions.

On the other hand, if the firm is not operating efficiently, its common costs may be higher than those incurred even by a smaller rival. The firm's only option is to reduce its common costs — unless by virtue of its control of inputs needed by a rival firm, it could leverage its high costs onto the rival. Thus, if an incumbent LEC has inefficiently high joint and common costs and public policy allows those costs to be transferred to local market entrants, the incumbent LEC would be spared the necessity of adjusting its own cost structure. Allowing an incumbent to include common costs would, in effect, place a Ramsey type "binding budget constraint" on entrants based upon the incumbent LECs' cost structure, enabling incumbents to maintain prices in excess of marginal costs, or, more practically, in excess of the market-clearing economic cost of production.²⁸

The argument that LECs should be allowed to recover joint and common costs through ICU rates implicitly assumes that their existing joint and common costs represent an appropriate level of efficiency and that their current organizational structure properly achieves the most efficient production of telecommunications services. This implicit assumption has, in fact, little support.²⁹

²⁸ See W. J. Baumol and P. F. Bradford, "Optimal Departures from Marginal Cost Pricing," American Economic Review, 1970 volume 60, pp. 265 - 283, at 280

²⁹ The fact that many regulatory agencies have moved to price cap plans in telecommunications cannot be presumed to mean that the monopoly incumbent LEC was as efficient as any possible local market rival when the cap was introduced. No price cap plan has been developed by examining the possible cost structure of a competing provider, because competitive conditions did not (and do not) prevail in local markets when the caps were introduced. One of the principal rationales for direct price regulation is the inefficiencies inherent in cost-plus rate base regulation; no price cap plan purports to eliminate any embedded LEC inefficiencies instantaneously.

The root of all the changes now occurring in the supply of telecommunications utility services, as well as energy utility policies, is the belief that the regulated monopoly model has been relatively inefficient and has not appropriately promoted economic welfare. Evidence in telecommunications suggests that large dominant monopoly carriers do not achieve the scale economies that were once thought to justify telecommunications and other utility services as a "natural monopoly."³⁰ The fact that many relatively small firms are now entering local telecommunications service markets also suggests that scale economies available to incumbent LECs may not be significant and may even not exist at all.

Excluding recovery of common costs from ICU prices is economically efficient. If common costs are at their efficient level, they are like a tax. They are not part of the direct and joint production costs of any product of a multi-product firm, and cannot be avoided, assuming the firm as adopted the appropriate cost minimizing production method. These remaining unavoidable costs represent a form of tax that would most efficiently be collected from the retail rather than the wholesale or intermediate market. The economic literature referenced at paragraphs 129-130 of the Notice with respect to Ramsey pricing demonstrates that such lump-sum taxation should not be applied to intermediate goods, regardless of whether prices for the firm's retail outputs vary relative to marginal costs according to the Ramsey pricing rule.

³⁰ See R. Shin and J. Ying, "Unnatural Monopolies in Local Telephone," RAND Journal of Economics, Summer 1992, Vol. 23, pp. 171-183. F. Kiss, S. Karabadjian, and B. Lefebvre, "Economies of Scale and Scope in Bell Canada," in Courville, et al. Economic Analysis of Telecommunications: Theory and Applications (1983), p.55, showing that scale economy increases experienced by Bell Canada flattened out and actually declined slightly during the 1970s. See also R. Schmalensee, "A Note on Economies of Scale and Natural Monopoly in the Distribution of Public Utility Services," Bell Journal of Economics, Spring 1978, Vol. 9, page 270.

[T]he optimal tax structure includes no intermediate goods taxes, since these would prevent efficiency...taxation of intermediate goods must be reflected in changes in final good prices. Therefore the revenue could have been collected by final good taxation, causing no greater change in final good prices and avoiding production inefficiency.³¹

It is clearly a distortion to allow competing firms to collect any excess common costs from rivals, and even efficient levels of common costs should be collected only from the end products of both incumbent LECs and market entrants. Incumbent LECs and entrants should be allowed to bid for the retail business of end users in terms that reveal their own relative efficiencies.³² By specifying economic rather than "revenue requirement" based pricing standards, the Telecommunications Act mandates that incumbent LECs and entrants bid against each other for the retail end user's business on the basis of their relative overall efficiencies, including their relative levels of joint and common costs. Clearly, this bidding process could be fatally distorted if either entity were allowed to foist its joint and common costs onto its competitor.

Limiting an incumbent's ability to leverage joint and common costs into the entrant's cost structure is consistent with the competitive market model. Recall that the model considers both the cost and capacity conditions that influence telecommunications costs and the general behavior of firms in markets where all inputs and outputs are available from more than one firm. As

³¹ P. A. Diamond and J. A. Mirrlees, "Optimal Taxation and Public Production, (Part I)" American Economic Review 1971, volume 61, pp. 8-27 at 24.

³² The concept of using forms of bidding processes to replace orthodox regulation of public utilities was developed in the economic analyses upon which most deregulation is based. See H. Demetz, "Why Regulate Utilities," Journal of Law and Economics, vol. 11, April 1968, pp. 55-67. Indeed, electric power deregulation is utilizing the same type of bidding process to substitute market forces for some aspects of the regulatory process.

intermediate telecommunications goods, ICU elements sold to potential competitors are profitable as long as they recover the incremental cost of the service. Because most incremental additions of telecommunications capacity have low marginal costs, the firm is better off selling the intermediate outputs at incremental cost than losing its wholesale customer to a rival. In the competitive market wholesale prices would not recover any costs common to the firm.³³

Markups to ICU prices to recover so-called "legacy costs"

Finally, incumbent LECs in many state interconnection proceedings have asserted that ICU prices for local market entrants should be increased to cover the incumbents sunk "legacy" costs, which may be labeled as costs of providing a "ubiquitous" network or acting as a "carrier of last resort." No state regulators have accepted these claims to my knowledge,³⁴ and it is notable how few incumbents have even tried to quantify these costs.

The Telecommunications Act recognizes only two classes of costs with

³³ To put this simply, the archetype common cost — the president's desk — cannot generally be recovered from wholesale services provided to another firm which has its own president. If market prices of the firm's retail offerings will not support full recovery of the common costs, the book value of the president's desk (or other overhead) may have to be written down.

³⁴ The Maryland Commission's conclusion concerning this issue is instructive: "Bell Atlantic's own information also shows that, on a total service basis, BA-MD more than covers its direct incremental costs of business and residence service in every county in the state...far from being a negative factor in its operations, the ubiquitous nature of Bell Atlantic's network presents BA-MD with marketing and business advantages not enjoyed by its competitors..... [N]ew business growth...will more than offset any losses." Maryland Public Service Commission, In the Matter of the Investigation by the Commission on its Own Motion into Policies Regarding Competitive Local Exchange Telephone Service, Case No. 8584, Phase II, Order No. 72348, December 28, 1995, at pp. 25 and 34.

respect to ICU elements: The economic costs of the incumbent LEC's resources used to provide ICU elements and any universal service costs that must be recovered in a separate, distinct and competitively neutral manner from all competing local service providers. A residuum of "legacy" costs fits in neither of these categories. The policy question about recovery of so-called legacy costs in excess of the incumbent LECs' direct TSLRIC is whether those costs were exclusively incurred to serve a universal service obligation. Again, the test of whether such services would have been provided by a LEC should mimic the decisions of a firm that (a) was fully subject to competition in all its markets and (b) had no universal service obligation. Such a firm's decision ultimately must be based upon the overall cash flow derived from, or the market value properly ascribed to, the group services or a market segment.

Many individual products and services are offered in fully competitive markets under conditions where some customers, or some combinations of customer purchases, produce lower than average returns. Nevertheless, those customers and services are still provided under competition because the aggregate cash flows realized by the supplier(s) are attractive overall. If evaluation of cash flows produced by a group of services to a market segment demonstrated that a competitive firm would not offer it, then the incumbent LEC and/or a competitive entrant should receive support for continuing to provide telecommunications services and all competing firms should contribute to that support. If this condition does not exist, on the other hand, the LECs' costs are not relevant either to rates for ICU elements or for universal service funding.

Finally, generalized recovery of these so-called legacy costs is not needed to maintain most incumbent LEC's current stock prices. The USTA has

identified \$38.9 billion in regulated asset write downs by ten major LECs for financial accounting purposes.³⁵ These write downs occurred during 1993-95 and represented over 26% of the LECs' average net plant. Under price regulation, the LECs' retail prices will not reflect these asset value adjustments, and they will have the opportunity to recover these costs over time. The time available is quite long, however. The financial accounting adjustment is already reflected in the LECs' share prices, and the capital market valuation of the companies will be unaffected whether the sunk costs are recovered over 2, 4, 10 or even 20 years.

Conclusion

This paper has attempted to resolve the two broad tradeoffs implicit in the Commission's discussion of interconnection, collocation and unbundled element prices. It described a system in which this Commission can assume its proper role of directing local competition on a national basis, while still allowing most state regulators to make effective use of their capabilities. Quantitative prescriptions such as explicit rate ceilings or pricing based upon existing LEC tariffs are not required at this time., but the Commission should prescribe several qualitative guidelines in some detail in order to direct TSLRIC studies of ICU elements. Several of these guidelines may be satisfied best by using industry wide proxy cost models rather than the proprietary and increasingly inaccessible models offered by incumbent LECs.

An appropriate incremental cost study will include a return sufficient for the firm to raise capital, and thus constitutes the maximum "reasonable profit"

³⁵ USTA Reply Comments, CC Docket 94-1, March 1, 1996 at Attachment D (Poitras and Vanston paper), p. 8.

that may be added to unbundled network elements under the Telecommunications Act. Contrary to the conventional wisdom, common costs of competing local service providers generally should not be collected from the prices of intermediate goods and services that are transferred among such firms. Finally market entrants should be expected to pay for only two types of costs incurred by incumbent providers of ICU elements: the appropriate incremental costs and the entrant's competitively neutral share of costs incurred specifically to satisfy universal service obligations. Adjustments to enable incumbents to recover other "legacy" costs cannot be reconciled with any truly competitive pricing model.

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Comments of the Association for Local Telecommunications Services was served May 16, 1996, on the following persons by hand service.


M. Louise Banzon

Regina Keeney
Chief, Common Carrier Bureau
Room 500
1919 M Street, N.W.
Washington, D.C. 20554

Janice Myles
Common Carrier Bureau
Room 544
1919 M Street, N.W.
Washington, D.C. 20554

ITS
2100 M Street, N.W.
Suite 140
Washington, D.C. 20554